

WHAT IS CLAIMED IS:

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1. A composite laminate interlayer for adhering a glass laminate consisting essentially of a sheet of polyethylene terephthalate between layers of plasticized polyvinyl butyral adhesive layers, wherein at least one of said polyvinyl butyral adhesive layers has a glass transition temperature greater than 35 °C.
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2. An interlayer according to claim 1 wherein said polyvinyl butyral adhesive layers are of different thickness.
3. An interlayer according to claim 1 wherein said polyethylene terephthalate sheet has a thickness greater than 0.075 millimeters (3 mils).
4. An interlayer according to claim 1 wherein said polyethylene terephthalate sheet has a thickness greater than 0.1 millimeters (4 mils).
5. An interlayer according to claim 1 wherein said sheet of polyethylene terephthalate has a functional coating for reducing radiation transmission through said glass laminate.
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6. A composite laminate interlayer for adhering glass laminates consisting essentially of a layer of polyethylene terephthalate between layers of plasticized polyvinyl butyral adhesive layers, wherein the polyethylene terephthalate layer has a thickness in the range of 0.125 to 0.254 millimeters (5-10 mils); and each adhesive layer has a thickness in the range of 0.25 to 2 millimeter (10 - 80 mils) and wherein the plasticized polyvinyl butyral has a glass transition temperature greater than 35 °C.
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7. A composite laminate interlayer for adhering glass laminates consisting essentially of three layers of plasticized polyvinyl butyral sheet adhered to each other wherein the inner layer of polyvinyl butyral has a glass transition temperature greater than 35 °C and the outer layers of polyvinyl butyral has a glass transition temperature less than 35 °C.
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8. A composite laminate interlayer for adhering glass laminates comprising a layer of plasticized polyvinyl butyral adhesive having a glass transition temperature greater than 35 °C, at least one layer of polyethylene terephthalate sheet having a thickness greater

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than 0.075 millimeters (3 mils), at least one elastomeric layer adapted to reducing sound transmission through the glass laminate, at least one other layer of plasticized polyvinyl alcohol adhesive.

9. A glass laminate having improved stiffness comprising in order:

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- (a) a first glass sheet,
  - (b) a first layer of plasticized polyvinyl butyral adhesive,
  - (c) a sheet of polyethylene terephthalate greater than 0.075 millimeters (3 mils) thick,
  - (d) a second layer of plasticized polyvinyl butyral adhesive,
  - (e) a second glass sheet,

10 wherein said glass laminate exhibits a maximum flexural modulus of greater than about 350 Newtons/centimeter

10. A glass laminate according to claim 9 exhibiting a maximum load before failure of at least 3000 Newtons.

11. A glass laminate according to claim 9 wherein at least one of the layers of plasticized polyvinyl butyral has a glass transition temperature greater than 35 °C.

12. A glass laminate according to claim 9 wherein at least one of the layers of plasticized polyvinyl butyral has a glass transition temperature greater than 40 °C.

13. A glass laminate according to claim 9 further comprising a sheet of sound attenuating elastomer.

14. A glass laminate according to claim 9 wherein said sheet of polyethylene terephthalate has a radiation blocking coating.

15. A glass laminate having improved stiffness consisting essentially of in order:

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- (a) a first glass layer,
  - (b) a first layer of plasticized polyvinyl butyral adhesive,
  - (c) a layer of polyethylene terephthalate,
  - (d) a second layer of plasticized polyvinyl butyral adhesive,
  - (e) a second glass layer,

wherein at least one layer of plasticized polyvinyl butyral adhesive has a glass transition temperature greater than 35 °C

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16. A glass laminate according to claim 15 wherein said glass laminate exhibits a maximum flexural modulus greater than about 350 Newtons/centimeter.
- 5 17. A glass laminate according to claim 15 wherein said glass laminate exhibits a maximum flexural modulus greater than about 450 Newtons/centimeter.
18. A glass laminate according to claim 15 wherein said glass laminate exhibits a maximum flexural modulus greater than about 550 Newtons/centimeter.
- 10 19. A glass laminate according to claim 15 wherein said glass laminate exhibits a maximum flexural modulus greater than about 650 Newtons/centimeter.
20. A glass laminate according to claim 15 exhibiting a maximum load before failure from a secured frame of at least 3000 Newtons.
21. A glass laminate according to claim 15 exhibiting a maximum load before failure from a secured frame of at least 4000 Newtons.
- 15 22. A glass laminate according to claim 15 exhibiting a maximum load before failure from a secured frame of at least 5000 Newtons.
23. A glass laminate according to claim 15 exhibiting a maximum load before failure from a secured frame of at least 6000 Newtons.
- 20 24. A glass laminate according to claim 15 wherein said sheet of polyethylene terephthalate has a radiation blocking coating.

25. A glass laminate having improved stiffness consisting essentially of in order:

- (a) a first glass sheet,
- (b) a first layer of plasticized polyvinyl butyral adhesive,
- (c) a first sheet layer of polyethylene terephthalate,
- (d) a layer of sound attenuating elastomer,
- (e) a second sheet of polyethylene terephthalate,
- (f) a second layer of plasticized polyvinyl butyral adhesive,
- (g) a second glass sheet,

wherein at least one layer of plasticized polyvinyl butyral adhesive has a glass transition temperature greater than 35 °C.

26. A glass laminate having improved stiffness comprising at least one layer of a plasticized polyvinyl butyral composite consisting of a layer of plasticized polyvinyl butyral having a glass transition temperature of about 33 °C and a layer of plasticized polyvinyl butyral having a glass transition temperature of 35 °C or higher.

27. A glass laminate according to claim 26 comprising two or more layers of said plasticized polyvinyl butyral composite.

28. A glass laminate according to claim 26 further comprising a layer of biaxially stretched polyethylene terephthalate.